

WHAT IS CLAIMED IS

17. An electronic timepiece allowing the display of at least a first and a second time related data item, said first time related data item being based on the Hour-Minute-Second system, this timepiece including a time base supplying pulses to a frequency divider circuit including N binary division stages and supplying first control 5 pulses allowing said first time related data item to be formed and displayed, this timepiece further including generating means arranged to supply, from auxiliary control pulses originating from said time base, second control pulses allowing said second time related data item to be formed and displayed,

wherein said second time related data item is based on a decimal system in 10 which the time is divided at least into thousandths of a day and wherein said second time related data item is displayed with three digits so that it cannot be confused with said first time related data item.

18. The electronic timepiece according to claim 17, wherein said generating means are arranged to count successively the auxiliary control pulses in accordance with a counting sequence formed of counting operations of n and n+1 auxiliary control pulses succeeding each other in accordance with a determined order so that said 5 generating means supply the second control pulses at a mean frequency allowing said second time related data item based on the decimal system to be formed, n being an integer number directly less than the division ratio of the frequency of said auxiliary control pulses by the frequency of said second control pulses.

19. The electronic timepiece according to claim 18, wherein said counting operations of n and n+1 auxiliary control pulses follow each other in accordance with an order determined so that the second control pulses are supplied with minimum time error.

20. The electronic timepiece according to claim 18, wherein said counting sequence is comprised in a table including as many entries as there are counting operations.

21. The electronic timepiece according to claim 20, wherein said table is formed of a binary word in which the binary value <> 0 <> indicates that n auxiliary control pulses must be counted and the binary value <> 1 <> indicates that n+1 auxiliary control pulses must be counted.

22. The electronic timepiece according to claim 20, wherein the entries of said table are indexed by means of a register containing a value of said second time related data item.

23. The electronic timepiece according to claim 18, wherein said counting operations of n or n+1 auxiliary control pulses are determined by means of a register containing a value of said second time related data item.

24. The electronic timepiece according to claim 17, wherein said generating means include a primary counter arranged for counting n auxiliary control pulses, and inhibition means for said primary counter arranged for periodically inhibiting k auxiliary control pulses upstream of said primary counter, so that the latter supplies the 5 second control pulses at a mean frequency allowing said second time related data item based on the decimal system to be formed, n being an integer number directly less than the division ratio of the frequency of said auxiliary control pulses by the frequency of said second control pulses.

25. The electronic timepiece according to claim 24, wherein said inhibition means include a secondary counter arranged for counting m auxiliary control pulses, a logic detection circuit coupled to said secondary counter so as to detect k intermediate states thereof, and an AND logic gate including two inputs, one being inverted and 5 connected to an output of said logic detection circuit and the other receiving said auxiliary control pulses, said logic detection circuit sending an inhibition signal blocking the AND logic gate when one of the k intermediate states is detected, so that one auxiliary control pulse is inhibited upstream of said primary counter.

26. The electronic timepiece according to claim 25, wherein said k intermediate states are selected so as to be equidistant from each other.

27. The electronic timepiece according to claim 17, wherein said generating means include a primary counter arranged for counting $n+1$ auxiliary control pulses, and initialization means coupled to said primary counter and arranged for periodically initializing said primary counter with a value k corresponding to a complementary 5 number of auxiliary control pulses so that said primary counter supplies the second control pulses at a mean frequency allowing said second time related data item based on the decimal system to be formed, $n+1$ being an integer number directly greater than the division ratio of the frequency of said auxiliary control pulses by the frequency of said second control pulses.

28. The electronic timepiece according to claim 27, wherein said initialization means include a secondary counter arranged for counting m second control pulses and an initialization circuit coupled to said primary counter, said secondary counter providing a signal to said initialization circuit every m second 5 control pulses so that said primary counter is initialized with a value k .

29. The electronic timepiece according to claim 17, wherein said auxiliary control pulses are supplied at an output of one of the binary division stages of said frequency divider circuit.

30. The electronic timepiece according to claim 17, wherein said auxiliary control pulses are supplied at an output of N^* additional binary division stages connected after said frequency divider circuit upstream of said generating means.

31. The electronic timepiece according to claim 17, wherein said generating means supply said second control pulses at a mean frequency of 1/8.64 Hz.
32. The electronic timepiece according to claim 17, wherein said generating means supply said second control pulses at a mean frequency of 1/86.4 Hz.